In the claims:

1. (Previously Presented) An integrated electronic system housing and magnet structure for an imaging system comprising:

a magnet structure containing;

a superconducting magnet; and

an RF coil assembly;

a housing attached to and external from said magnet structure, said housing containing imaging system support electronics having a controller and not said RF coil assembly; and

a radio frequency shield coupled to said housing and preventing radio frequency interference between said imaging system support electronics and said RF coil assembly.

2. (Previously Presented) An integrated electronic system housing and magnet structure as in claim 1 wherein said radio frequency shield is coupled within said housing.

3. (Previously Presented) An integrated electronic system housing and magnet structure as in claim 1 wherein said imaging system support electronics is encased in said radio frequency shield.

4. (Previously Presented) An integrated electronic system housing and magnet structure as in claim 1 wherein said radio frequency shield is coupled within said housing and encases said imaging system support electronics.

5. (Previously Presented) An integrated electronic system housing and magnet structure as in claim 1 wherein said imaging system support electronics comprises at least one of a radio frequency amplifier, a gradient amplifier, a timing device, an oscillator, a radio frequency transmitter, a gradient coil controller, and a sequence controller.

6. (Previously Presented) An integrated electronic system housing and magnet structure as in claim 1 wherein said radio frequency shield comprises at least one layer.

7. (Previously Presented) An integrated electronic system housing and magnet structure as in claim 6 wherein said at least one layer comprises:

a first layer; and

a second layer coupled to said first layer;

said first layer and said second layer having capacitance therebetween.

8. (Previously Presented) An integrated electronic system housing and magnet structure as in claim 1 wherein said radio frequency shield is metallic.

9. (Previously Presented) An integrated electronic system housing and magnet structure as in claim 1 wherein said radio frequency shield is a conductive mesh.

10. (Previously Presented) An integrated electronic system housing and magnet structure as in claim 1 wherein said radio frequency shield is a superconductor.

11. (Previously Presented) An integrated electronic system housing and magnet structure as in claim 1 wherein said radio frequency shield comprises at least one void.

12. (Previously Presented) An integrated electronic system housing and magnet structure as in claim 1 wherein said radio frequency shield reflects radio frequencies.

13. (Previously Presented) An imaging system comprising:

a magnet structure generating at least one magnetic field and containing;

a superconducting magnet;

a gradient coil assembly; and

an RF coil assembly;

a first housing external, separate, and coupled to said magnet structure and containing imaging system support electronics having a microprocessor and not said RF coil assembly; and

a radio frequency shield coupled to said housing and preventing radio frequency interference between said at least one magnetic field and said imaging system support electronics.

14. (Previously Presented) An imaging system as in claim 13 further comprising a second housing containing said magnet structure, wherein said first housing and said second housing are integrally formed as a single unit.

15. (Original) A system as in claim 13 wherein said imaging system support electronics is encased in said radio frequency shield.

16. (Original) A system as in claim 13 wherein said radio frequency shield is coupled within said housing and encases said imaging system support electronics.

17. (Original) A system as in claim 13 wherein said radio frequency shield comprises at least one layer.

18. (Original) A system as in claim 17 wherein said at least one layer comprises:

a first layer; and

a second layer coupled to said first layer;

said first layer and said second layer having capacitance therebetween.

19. (Original) A system as in claim 13 wherein said radio frequency shield is metallic.

20. (Original) A system as in claim 13 wherein said radio frequency shield is a conductive mesh.

21. (Original) A system as in claim 13 wherein said radio frequency shield is a superconductor.

22. (Previously Presented) An imaging system comprising:

a first housing having imaging system support electronics comprising at least one of a radio frequency amplifier, a gradient amplifier, a timing device, an

oscillator, a radio frequency transmitter, a gradient coil controller, and a sequence controller;

a second housing integrally formed with said first housing and containing a magnet structure that is separate from said first housing, generates at least one magnetic field, and contains;

a superconducting magnet;

a gradient coil assembly; and

at least one radio frequency receiver coil; and

a radio frequency shield coupled within said first housing, encasing said imaging system support electronics, and preventing radio frequency interference between said imaging system support electronics and said at least one radio frequency receiver coil.

23. (Previously Presented) An integrated electronic system housing and magnet structure as in claim 1 wherein said housing does not contain said magnet structure.

24. (Previously Presented) An integrated electronic system housing and magnet structure as in claim 1 wherein said magnet structure and said imaging system support electronics reside within the same room.

25. (Previously Presented) A system as in claim 13 further comprising a second housing that is separate, attached, and external from said first housing and contains said magnet structure.

26. (Canceled)